

SUPPORT FOR THE AMENDMENTS

The amendment to Claim 1 is supported by the specification at page 2, line 21. No new matter is believed to have been added to the present application by the amendments submitted above.

REMARKS

Claims 1, 3-6 and 8-15 are pending. Favorable reconsideration is respectfully requested.

Applicants would like to thank Examiner Keys for the helpful and courteous discussion held with their representative on January 23, 2007. During the discussion, Applicants' representative pointed out that the Combs et al. explicitly states that the best results are obtained with a content of unsaturated components of *less than about 5%*. The following remarks expand on the discussion with the Examiner.

As amended, the present invention relates to a polyether obtained by reacting 1-butene oxide and an alcohol in the presence of a double metal cyanide compound as a catalyst, where the content of unsaturated components is from 8 mol% to 30 mol%. See Claim 1.

The rejection of the claims under 35 U.S.C. §103(a) over Combs et al. and Le-Khac is respectfully traversed. The cited references fail to suggest the claimed polyether.

Combs et al. teaches that polyetherpolyols prepared with a DMC-catalyst have a content of unsaturated products which is less than 5 mol%, i.e., 5 mol% is the maximum value. See, for example, column 2, lines 24-37 of the reference. In addition, table 4 of Combs et al. discloses polyetherpolyols based on propane oxide having a content of unsaturated compounds of from 0.007 mol% to 0.034 mol% and from 0.024 mol% to 0.042 mol%, i.e., values which are far lower than 5 mol%.

Le-Khac teaches that polyoxyalkylene monoethers containing less than about 6 mol% of alkoxyated unsaturated are useful in additives for fuels. In particular, the monoethers have reduced water affinity and a substantially reduced tendency to form emulsions with water present in lipophilic systems. See column 2, lines 24-29 of Le-Khac.

A person having ordinary skill in the art would not be taught by the combination of Combs et al. and Le-Khac that a polyether obtained by reacting 1-buteneoxide and an alcohol in the presence of a double-metal cyanide compound as a catalyst should have a content of unsaturated components of from 8 mol% to 30 mol%, as specified in Claim 1. In each of the cited references, the maximum amount of the unsaturated components is much, much less than 8 mol%.

The advantageous behavior of a polyether having such a high amount of unsaturated components, as claimed, is demonstrated by the examples of the present application. Tables 2, 3 and 4 of the present specification show that an additive package based on carrier oil from experiment 1, corresponding to the prior art and an additive packaged based on carrier oil from experiment 4, according to the present invention show the same positive behavior in respect of an emulsion test to DIN 51415, a corrosion test to DIN 51585 and a test concerning storage stability at -20°C, 0°C and +35°C.

In addition to those experimental data, which show that a carrier oil having such a high amount of unsaturated components is as good as a carrier oil having a very low amount of unsaturated components in table 5 it is shown that the composition according to the present invention shows as improved performance relating to intake valve cleanliness (IVD) and a tendency to form chamber deposits (TCD) in MB M 111 according to CEC F-20-A-98. For example, at a dose rate of 275 mg/kg, package based on carrier oil from experiment 1, according to the prior art, shows a TCD of 1530 mg/cyl., whereas a package based on the carrier oil from experiment 4, according to the present invention, shows a TCD of just 1417 mg/cyl. The lower value of TCD demonstrates that the package based on the inventive carrier oil from experiment 4 makes it possible to decrease the amount of chamber deposits (TCD). The decrease is -8%.

At a dose rate of 325 mg/kg, the package based on carrier oil from experiment 1 shows a TCD of 1544 mg/cyl., while the package based on carrier oil from experiment 4 shows a TCD of just 1494 mg/cyl., which is a decrease of -4%,

The experimental data discussed above demonstrate that the package based on carrier oil from experiment 4 can improve the characteristic features of the gasoline fuel treated with this additive package in respect of emulsion, corrosion, storage stability and performance relating to intake valve cleanliness and tendency to form chamber deposits.

Combs et al. and Le-Khac do not point in the direction that a high amount of unsaturated components of 8-30 mol% makes it possible to obtain additives for fuels that can help in improving characteristic features that are essential for a long lifetime of a combustion engine which is driven with this fuel. Combs et al. and Le-Khac suggest that a very low amount of unsaturated components is important for a good behavior as a fuel additive. The examples that are shown in the specification of the present application prove that a high amount of between 8-30 mol% gives better results than a low amount of < 1 mol%, as it is suggested in the cited references.

In view of the foregoing, the claimed polyether is not suggested by the combination of Combs et al. and Le-Khac. Accordingly, Claims 1, 3-6 and 8-15. Withdrawal of this ground of rejection is respectfully requested.

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Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

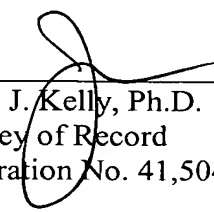
Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)



James J. Kelly, Ph.D.
Attorney of Record
Registration No. 41,504